

CLAIMS

1. A wavelength-selective optical signal processing unit comprising an outcoupling filter (1) for decomposing an incoming wavelength multiplex comprising a plurality of channels at different wavelengths into a first and a second group of channels, a processing unit (14) for carrying out a processing of the first group, and an incoupling filter (1) for combining the processed first group and the second group into an outgoing wavelength multiplex, characterized in that the outcoupling filter (1) and the incoupling filter (1) have a continuous wavelength-selective reflecting structure in common, which reflects the first group from the incoming multiplex into a first direction and lets the second group pass and which reflects the first group arriving from a second direction after having passed through the processing unit (14) into the passing direction of the second group.
2. The signal processing device of claim 1, characterized in that the wavelength-selective structure is a Bragg grating (7).
3. The signal processing device of claim 1, characterized in that the wavelength-selective reflecting structure is a dichroic mirror.
4. The signal processing device according to any one of the preceding claims, characterized in that it is provided for a wavelength multiplex having a plurality of information channels and at least one supervisory channel (OSC), that the at least one supervisory channel forms the first group and that the information channels form the second group.

5. The signal processing device according to any one of the preceding claims, characterized in that it comprises at least one optical amplifier stage (12, 15) passed through by the entire wavelength multiplex.

6. The signal processing device of claim 5, characterized in that the optical amplifier stage (12, 15) is transparent for the first group also in its unpumped state.

7. The signal processing device according to one of the preceding claims, characterized in that it is a regenerating amplifier for an optical long distance cable.